

REMARKS

A telephone interview was held with Examiner Lucas on Monday, August 26, 2002. The outstanding rejection of the claims was discussed. The rejections under 35 USC 112, second paragraph, and the rejection of the claims under 35 USC 103(a) as being unpatentable over Adams in view of Tucker were also discussed.

With respect to the 35 USC 112 2nd paragraph rejection, the applicant proposed to incorporate the limitation reciting the front face of the impeller shoe having a "generally convex" shape. The Examiner indicated that such structure would overcome the 35 USC 112 2nd paragraph rejection, and upon a quick inspection, he believed that Tucker nor Adams did not anticipate such a limitation under 35 USC 102.

The rejection of claims 1-18 as being unpatentable over Adams in view of Tucker was discussed. The objective of the principal reference and secondary reference, Tucker, were described to the Examiner. The Adams patent discloses a vertical impeller rock crusher. Adams discloses an apparatus extending the life of an impeller by improving the design of the anvils 17. The anvil includes breaker plates that are fastened to the wall of the impeller housing onto hooks to permit for easy replacement of the anvils as they wear down.

The Tucker patent discloses an impeller shoe design on a vertical rock crusher that includes structure for improving wear. Tucker identifies a problem in the prior art of nonuniform wear occurring on impeller shoes. The nonuniform wear on the face of prior art impeller shoes, Tucker alleges, was on account of concentrated aggregate material flow on some sections of the impeller face (e.g., rock). The nonuniform wear resulted in premature wearing out of prior art shoes.

The principal objective of Tucker was to design a shoe that wears more evenly and, hence, lasts longer (column 1, lines 54-60; column 1, line 62, to column 2, line 18). Two primary impeller shoe embodiments are disclosed in Tucker. Figures 1-6

disclose a first embodiment and Figures 7-12 disclose a second embodiment. The first embodiment incorporates a plurality of misaligned carbide buttons for diverting flow (column 3, lines 26-44) and the second embodiment in Figures 7-12 incorporates a plurality of parallel ridges for diverting flow evenly across the face of a shoe. The gist of Tucker's invention is to prevent concentrated material flow by providing protrusions and/or obstructions that cause the material flow to disperse evenly across the face of the impeller shoe.

There is no recognition of a wear problem occurring on the center feed cone of the impeller plate shown in Adams or in Tucker. There is no motivation for an artisan to provide a plurality of hard material insert rods on the central feed body. The examiner is using impermissible hindsight and has failed to demonstrate proper motivation to combine the Adams and Tucker references, under 35 USC 103, in order to establish a *prima facie* case of obviousness.

Adams shows the profile of a central feed disc in Figure 1. There is no description of the operation or details of the structure of the central feed disc in Adams. Further, there is no description of nonuniform flow across the center feed disc in Adams. At best, Tucker would teach an ordinary artisan to impregnate the impeller shoes in Adams with hard material insert rods.

The use of insert rods in Tucker is to promote breakup of material flow. The successive rows of insert rods are staggered so as to break up flow and disperse streams (column 3, lines 26-44). Where is the motivation to include a plurality of insert rods on the center feed body of Adams? The Adams patent is silent with respect to the material used to construct the center feed disc. The Adams center feed disc may be made from a material as hard or harder than the insert rods disclosed by applicant and/or Tucker. For instance, if the center feed disc in Adams were made from tungsten carbide, there would be no reason to

impregnate the center feed body with a plurality of hard material tungsten carbide insert rods.

In the body of the rejection, under item #2, the Examiner writes:

"Furthermore, the location and/or arrangement of the hard material inserts within the various parts of the impact crusher would have been an obvious matter of design choice absent a showing of criticality by the applicant."

The Examiner appears to be suggesting by the phrase "design choice absent a showing of criticality" that the location of insert rods is merely aesthetic, see MPEP 2144.04. In claims 4 and 11, the relationship of the top surface of an insert rod with regard to the bottom surface of an insert rod on the next adjacent step of the center feed body is recited. The purpose of this structural design is to limit the insert from being "washed out". The critical nature of this relationship is explicitly stated in the claims. This limitation set forth in claims 4 and 11 is not a matter of aesthetic "design choice". Aesthetic choice is not adequate motivation for an ordinary artisan to modify a primary reference to establish a *prima facie* case of obviousness, unless perhaps the claim limitations serve no utilitarian purpose and are just ornamental.

Similarly in claims 5 and 15, the adjacent rows of insert rods on the liner and shoe are "stitched" for a purpose, and not a matter of aesthetic design choice. The stitched pattern, as explicitly recited in these claims, "protects the corner crease between the liner and shoe".

Claims 6-8 and 12-14 recite claim limitations that are not merely matters of ornamentation, but are positioned and oriented as claimed for a logical reason. The purpose of these claimed design limitations is generally set out in the specification and drawings.

The Examiner is requested to cite supporting case law in support of his position that the location and/or arrangement of insert rods is an "obvious matter

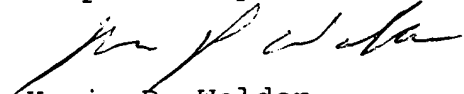
of design choice," or set out a *prima facie* case of obviousness with respect to the individual limitations (location and/or arrangement) recited in the claims. In particular, it is requested that the Examiner elaborate and identify the motivation as gleaned from Adams and Tucker for modifying Adams' crusher to have insert rods positioned and arranged as recited in the above-mentioned claims.

The prior art does not suggest or anticipate any benefits of modifying the center feed disc in Adams to have a plurality of insert rods. There is no extrinsic or intrinsic factor that would prompt one of ordinary skill in the art to combine the teachings of Tucker and Adams. The examiner has failed to demonstrate proper motivation to combine the Adams and Tucker references under 35 USC 103 in order to establish a *prima facie* case of obviousness. Accordingly, it is submitted that claims 1-17 and 19 be allowed.

In view of the above amendments and comments, it is believed that the claims are patentable over the art of record. Thus, applicant respectfully requests a Notice of Allowance indicating claims 1-17 and 19 as being allowable. If for any reason the examiner does not believe that the application is in condition for allowance, the examiner is requested to telephone applicant with any comments or questions (724-539-3848) in order to expedite prosecution of the application.

The Commissioner is hereby authorized to charge any fees, including additional filing fees required under 37 CFR 1.16 and 1.17, in connection with this submission to Kennametal Inc. corporate Deposit Account 11-0508.

Respectfully submitted,


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(Version with markings to show changes made)

IN THE CLAIMS:

16. (Amended) An impeller for hurling aggregate material toward anvils, said impeller comprising:

a table; and

a center feed body,

[a] an impeller shoe having a front face, said shoe connected by a support bracket to said table,
wherein said [shoe] front face has a
[geometric] convex shape that reduces excessive normal forces and accompanying high friction of the material against the shoe.

17. (Amended) An impeller shoe comprising:

a body having a front face,

wherein said [body] front face has a
[geometric] convex shape that reduces excessive normal forces and accompanying high friction of the material against the shoe.

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